**REMARKS**

This Amendment rewrites claims 1, 16 and 28. Fig. I on page 6 of the specification supports the "position 2 only" feature of claims 1, 16 and 28. The only other change to claim 28 merely deletes an explanatory parenthetical which had previously been deleted from claims 1 and 16. The re-insertion of nitrogen as a member of the Markush group of n` heteroatoms in claims 1 and 16 is supported by these claims as originally filed. A version showing the changes made is attached as an Appendix. Claims 1-29 are pending.

The 35 U.S.C. § 103(a) rejection of claims 1-6, 8-20 and 22-29 over U.S. Patent No. 5,122,492 to Albizzati et al., U.S. Patent No. 5,068,213 to Albizzati et al., and U.S. Patent No. 4,978,648 to Barbe et al. in view of Japanese Published Patent Application No. 2-242,804 to Denko, based on the Board's substantially different rationale, is respectfully traversed.

The Board's construction of claim 1 ignores an express limitation that the cyclic or polycyclic structure have 2 or 3 unsaturations and be made up of a maximum of 7 carbon atoms[1]. The

[1]The relevant language of claim 1 follows: "[A]nd a cyclopolyenic 1,3-diether in which only the carbon atom in position 2 belongs to a cyclic or polycyclic structure made up of 5, 6 or 7 carbon atoms, or 5-n or 6-n` carbon atoms, and respectively n atoms of nitrogen and n` heteroatoms selected from the group consisting of N, O, S and Si, where n is 1 or 2 and n` is 1, 2 or

prior art diethers cited in the Decision do not disclose or suggest a cyclopolyenic structure having a maximum of 7 carbon atoms. Claim 1, as construed in accordance with the Board's interpretation but further limited by this express limitation, defines patentable subject matter over the references of record.

## I. The Board's Claim Construction is Incomplete

The Board based its Decision on a construction of claim 1 on the location of 2 or 3 unsaturated groups in the cyclic or polycyclic structure:

> Our construction of the subject matter defined by appellants' claim 1 is directed to the scope of the language cyclopolyenic 1,3-diether "optionally condensed with other cyclic structures." The issue at hand is whether the language of claim 1 requires that the ether groups be attached solely to a cyclopolyenic moiety containing 2 or three unsaturated groups or includes a polycyclic moiety having two or three unsaturated groups in at least one moiety fused to at least a second saturated moiety wherein the ether groups may be attached to the saturated cyclic moiety.

Decision, page 4, lines 5-11. The Board interpreted claim 1 to read on a saturated cyclic structure which is fused to other rings, at least one of the other rings containing two or three unsaturated groups:

> [W]e interpret claim 1 as reading on polycyclic components wherein methoxy methyl or other ether groups

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3..."(emphasis added).

> may be attached to a cyclopenic moiety in which the 2-position is part of a cyclic structure which is in and of itself saturated but fused to other rings, at least one of the other rings containing two or three unsaturated groups.

Decision, page 4, line 20 to page 5, line 3. The Board's claim construction focused on the location of the ether groups on the 2-position carbon and the availability of the unsaturation of aromatic rings fused to a saturated ring to satisfy the multiple unsaturation limitation of claim 1.

Applicants do not contest the correctness of the Board's claim construction as far as it goes. However, the Board's interpretation of claim 1 is incomplete in that it ignores the express recitation that the cyclic or polycyclic structure is made up of a maximum of 7 carbon atoms. Nowhere in the Decision is this limitation of claim 1 discussed.

## II. Claim 1 is Patentable Over the References of Record

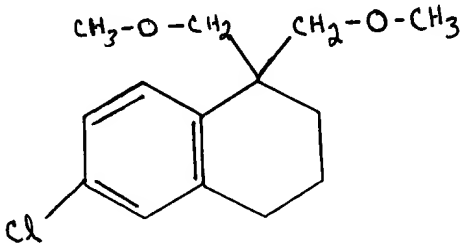
Claim 1, as properly construed, is not anticipated nor rendered obvious by any of the references considered by the Board.

### A. Claim 1 is Novel Over Albizzati `213

U.S. Patent No. 5,068,213 to Albizzati et al. ("Albizzati `213") discloses 1,1-bis(methoxymethyl)-6-chloro-tetrahydro-naphthalene (Col. 3, lines 28-29). The Board found that this

compound anticipates Applicants' claim 1 (Decision, page 5, last line to page 6, line 1).

There are ten carbon atoms in the cyclopolyenic structure of 1,1-bis(methoxymethyl)-6-chloro-tetrahydronapthalene, set forth below:




Claim 1 is not anticipated by this compound because claim 1 expressly requires the carbon atom in position 2 to belong to a cyclic or polycyclic structure made up of 5, 6 or 7 carbon atoms, or a smaller number of carbon atoms if nitrogen, oxygen, sulfur and/or silicon atoms are present. In contrast, 1,1-bis(methoxymethyl)-6-chloro-tetrahydronapthalene has 10 carbon atoms in its cyclopolyenic structure. The fact that conventional nomenclature omits bridged carbon atoms which contain no substituents when numbering the carbon atoms in such ring systems is irrelevant to the actual number of carbon atoms in the ring system. The Board recognized this in its definition of indane as having a 9 carbon atom ring system. See footnote 1 on page 6 of the Decision.

B. Claim 1 is Patentable Over Albizzati `213

Claim 1, as properly construed, is patentable over Albizzati `213 for the reasons discussed in the Appellant's Brief on Appeal. Albizzati `213 defines a structural formula for "particularly useful" 1,3-diethers beginning at Col. 2, line 9. Although unsaturated radicals are included within the definitions of $R_1$, $R_2$, X and Y, Albizzati `213 fails to disclose or suggest 1,3-diethers having a cyclopolyenic ring structure in which only the 2-position carbon atom belongs to a cyclic or polycyclic structure containing 2 or 3 unsaturations and a maximum of 7 carbon atoms, or that the use of such cyclopolyenic 1,3-diethers as either internal or external electron donors to olefin polymerization catalysts permits very high levels of stereospecificity while maintaining high catalytic activity. More particularly, X and Y are radicals attached to the central carbon of the 1,3-diether. Although X may be unsaturated, there is no cyclic structure identified wherein the central carbon atom is part of the ring. Similarly, Y is either hydrogen, a $C_{1-18}$ hydrocarbyl radical, or the same as X when X is certain compounds. See col. 2, lines 25-53.

Albizzati `213 also teaches that X and Y can be bonded together to form a $C_{1-18}$ hydrocarbon ring, optionally containing selected heteroatoms and optionally bonded to the central carbon atom through "a" double bond (Col. 2, lines 54-60). This

disclosure fails to suggest the multiply unsaturated cyclic structure required by the claimed invention, particularly in view of the non-cyclic definition of X (when it is not bonded to the Y radical) which can contain "at least" one double bond.

Albizzati `213 lists "representative" 1,3-diethers which contain halogen atoms (Col. 2, line 61 to Col. 3, line 58), diethers which contain heteroatoms other than halogens (Col. 3, line 59 to Col. 4, line 35), unsaturated 1,3-diethers (Col. 4, line 36 to Col. 5, line 11), and diethers which contain heteroatoms and unsaturation (Col. 5, lines 12-52). None of these diethers contain the cyclopolyenic structure required by the properly-construed claims of this application.

Albizzati `213 lists a mono-unsaturated analog[2] among many other non-analogous diethers. However, one of ordinary skill in the art is not given any suggestion or motivation to modify this mono-unsaturated analog by incorporating additional unsaturation into the ring containing the central (2-position) carbon atom because 1,1-bis(methoxymethyl)-6-chloro-tetrahydronaphthalene is classified by Albizzati `213 with "diethers containing halogen atoms" (Col. 2, lines 61-62) rather than being identified with the "unsaturated diethers" at Col. 4, line 36 et seq. One of ordinary

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[2]1,1-bis(methoxymethyl)-6-chloro-tetrahydronaphthalene. See Col. 3,lines 28-29.

skill in the art *might* consider additional halogenation but is given no suggestion to incorporate additional unsaturation into 1,1-bis(methoxymethyl)-6-chloro-tetrahydronaphthalene in view of its classification with "diethers containing halogen atoms".

C. Claim 1 is Patentable Over Albizzati `492

Claim 1, as properly construed, is patentable over Albizzati `492 for the reasons discussed in the Appellant's Brief on Appeal. Just like Albizzati `213, Albizzati `492 fails to disclose or suggest 1,3-diethers having a cyclopolyenic ring structure in which only the 2-position carbon atom belongs to a cyclic or polycyclic structure containing 2 or 3 unsaturations and a maximum of 7 carbon atoms, or that the use of such cyclopolyenic 1,3-diethers as either internal or external electron donors to olefin polymerization catalysts permits very high levels of stereospecificity while maintaining high catalytic activity.

The Decision identifies 1,3-diethers which are said to come within the scope of Applicants' claim 1. However, these 1,3-diethers fail to satisfy or suggest the maximum 7 carbon atom limitation for the cyclic or polycyclic structure of the 1,3-diethers contained in the claimed solid catalyst component. Thus, 1,1-dimethoxymethyl-1,2,3,4-tetrahydronaphthalene has a cyclic structure containing 10 carbon atoms. The remaining two diethers

cited in the Decision are indanes[3], which the Board itself defined as having a ring system containing 9 carbon atoms. One of ordinary skill in the art is given no suggestion or motivation to modify these compounds to arrive at the diethers required by the claimed solid catalyst component.

D. Claim 1 is Patentable Over Barbé et al.

Claim 1, as properly construed, is patentable over Barbé et al. for the reasons discussed in the Appellant's Brief on Appeal. Just like Albizzati `213 and Albizzati `492, Barbé et al. fails to disclose or suggest 1,3-diethers having a cyclopolyenic ring structure in which only the 2-position carbon atom belongs to a cyclic or polycyclic structure containing 2 or 3 unsaturations and a maximum of 7 carbon atoms, or that the use of such cyclopolyenic 1,3-diethers as either internal or external electron donors to olefin polymerization catalysts permits very high levels of stereospecificity while maintaining high catalytic activity.

The Decision cites Col. 3, lines 7-10 as disclosing 1,3-diethers directed to naphthalene and indane derivatives.[4] However,

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[3]1,1-dimethoxymethylindane and 1,1-dimethoxymethylindane.

[4]Col. 3, lines 7-10, of Barbé et al. list the following compounds: 1,1-dimethoxymethyl-1,2,3,4-tetrahydronaphthalene; 1,1-dimethoxymethyl-decahydronaphthalene; 1,1-dimethoxymethylindane-2,2-dimethoxymethylindane; and 1,1-dimethoxymethyl-2-isopropyl-5-

as discussed above, naphthalene and indane derivatives fail to satisfy or suggest the maximum 7 carbon atom limitation for the cyclic or polycyclic structure of the 1,3-diethers contained in the claimed solid catalyst component.

E. The Board Found There Is No Motivation To Combine Any of the Three Primary References With Denko

The Examiner had applied all three primary references in view of Japanese Patent Publication 2-242804 to Denko. However, the Board found there was neither motivation to combine nor a reasonable chance of success for substituting its polyenic unsaturation for that of the primary references (Decision, page 7, lines 1-4). Applicants heartily agree with these findings.

Reconsideration and withdrawal of the obviousness rejection of claims 1-6, 8-20 and 22-29 are earnestly requested.

The amendment of claims 1 and 16 to include nitrogen as a permissible member of the Markush grouping of n` heteroatoms does not create any ambiguity in these claims. One of ordinary skill in the art would understand that n and n` signify separate and distinct Markush groups, and would further understand that nitrogen may be a member of both groups.

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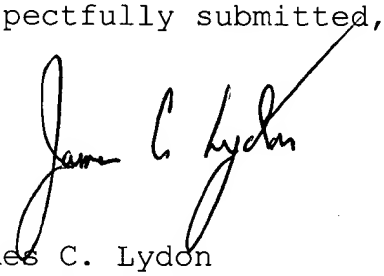
methylcyclohexane.

It is believed the application is in condition for allowance. Reconsideration and withdrawal of the sole rejection of claims 1-6, 8-20 and 22-29, and issuance of a Notice of Allowance directed to claims 1-29, are earnestly requested. The Examiner is urged to telephone the undersigned should he believe any further action is required for allowance.

It is not believed that any fee is required for entry and consideration of this Amendment. Nevertheless, the Commissioner is authorized to charge our Deposit Account No. 50-1258 in the amount of any such required fee.

Respectfully submitted,



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Appendix

**APPENDIX**

**Version Showing Changes Made**

**IN THE CLAIMS**:

Claims 1, 16 and 28 have been rewritten as follows:

1. (Twice Amended) A solid catalyst component for the polymerization of olefins, comprising a magnesium halide in active form, and, supported thereon, a titanium compound containing at least one Ti-halogen bond and a cyclopolyenic 1,3-diether in which only the carbon atom in position 2 belongs to a cyclic or polycyclic structure made up of 5, 6, or 7 carbon atoms, or 5-n or 6-n` carbon atoms, and respectively n atoms of nitrogen and n` heteroatoms selected from the group consisting of N, 0, S and Si, where n is 1 or 2 and n` is 1, 2 or 3, said structure containing two or three unsaturations and optionally being condensed with other cyclic structures, or substituted with one or more substituents selected from the group consisting of linear or branched alkyl radicals; cycloalkyl, aryl, aralkyl, alkaryl radicals and halogens, or being condensed with other cyclic structures and substituted with one or more of the above mentioned substituents which can also be bonded to the condensed cyclic structures; one or more of the above mentioned alkyl, cycloalkyl, aryl, aralkyl or alkaryl radicals and the condensed cyclic structures optionally containing one or more heteroatoms as substitutes for carbon or hydrogen atoms, or both.

16. (Twice Amended) A catalyst for the polymerization of olefins comprising the product of the reaction between:

a[1]) a solid catalyst component comprising a magnesium halide in active form and, supported thereon, a titanium compound containing at least one Ti-halogen bond and an electron donor compound;

b) an Al-alkyl compound;

c) a cyclopolyenic 1,3-diether in which only the carbon atom in position 2 belongs to a cyclic or polycyclic structure made up of 5, 6, or 7 carbon atoms, or 5-n or 6-n` carbon atoms, and respectively n atoms of nitrogen and n` heteroatoms selected from the group consisting of N, O, S and Si, where n is 1 or 2 and n` is 1, 2 or 3, said structure containing two or three unsaturations and optionally being condensed with other cyclic structures, or substituted with one or more substituents selected from the group consisting of linear or branched alkyl radicals; cycloalkyl, aryl, aralkyl, alkaryl radicals and halogens, or being condensed with other cyclic structures and substituted with one or more of the above mentioned substituents that can also be bonded to the condensed cyclic structures; one or more of the above mentioned alkyl, cycloalkyl, aryl, aralkyl or alkaryl radicals and the condensed cyclic structures optionally containing one or more heteroatoms as substitutes of carbon or hydrogen atoms, or both.

28. (Once Amended) The catalyst of claim 24, where the electron-donor compound supported on the solid catalyst component a[1]) is a cyclopolyenic 1,3-diether in which only the carbon atom in position 2 belongs to a cyclic or polycyclic structure made up of 5, 6, or 7 carbon atoms, or 5-n or 6-n` carbon atoms, and respectively n atoms of nitrogen and n` heteroatoms selected from the group consisting of N, 0, S and Si, where n is 1 or 2 and n` is 1, 2 or 3, said structure containing two or three unsaturations **[**(cyclopolyenic structure)**]** and optionally being condensed with other cyclic structures, or substituted with one or more substituents selected from the group consisting of linear or branched alkyl radicals; cycloalkyl, aryl, aralkyl, alkaryl radicals and halogens, or being condensed with other cyclic structures and substituted with one or more of the above mentioned substituents that can also be bonded to the condensed cyclic structures; one or more of the above mentioned alkyl, cycloalkyl, aryl, aralkyl or alkaryl radicals and the condensed cyclic structures optionally containing one or more heteroatoms as substitutes of carbon or hydrogen atoms, or both.